

SEQUENCE LISTING

<110> Bluestone, Jeffrey
 Collins, Mary
 Griffin, Mathew
 Kranz, David

<120> SURFACE-BOUND ANTIGEN BINDING PORTIONS OF ANTIBODIES
 THAT BIND TO CTLA4 AND USES THEREFOR

<130> GNN-014CP

<140>

<141>

<150> 60/196,851

<151> 2000-04-12

<160> 4

<170> PatentIn Ver. 2.0

<210> 1

<211> 672

<212> DNA

<213> Homo sapiens

<400> 1

```

atggcttgcc ttggatttca gcggcacaag gctcagctga acctggctgc caggacctgg 60
ccctgcactc tcctgttttt tcttctcttc atccctgtct tctgcaaagc aatgcacgtg 120
gccagcctg ctgtggtact ggccagcagc cgaggcatcg ccagctttgt gtgtgagtat 180
gcatctccag gcaaagccac tgaggtccgg gtgacagtgc ttccggcaggc tgacagccag 240
gtgactgaag tctgtgcggc aacctacatg acggggaatg agttgacctt cctagatgat 300
tccatctgca cgggcacctc cagtggaaat caagtgaacc tcactatcca aggactgagg 360
gccatggaca cgggactcta catctgcaag gtggagctca tgtaccacc gccatactac 420
ctgggcatag gcaacggaac ccagatttat gtaattgatc cagaaccgtg ccagatttct 480
gacttctctc tctggatcct tgcagcagtt agttcggggt tgttttttta tagctttctc 540
ctcacagctg tttctttgag caaaatgcta aagaaaagaa gccctcttac aacaggggtc 600
tatgtgaaaa tgccccaac agagccagaa tgtgaaaagc aatttcagcc ttatatttatt 660
cccatcaatt ga 672

```

<210> 2

<211> 223

<212> PRT

<213> Homo sapiens

<400> 2

```

Met Ala Cys Leu Gly Phe Gln Arg His Lys Ala Gln Leu Asn Leu Ala
  1              5              10              15

```

```

Thr Arg Thr Trp Pro Cys Thr Leu Leu Phe Phe Leu Leu Phe Ile Pro
      20              25              30

```

```

Val Phe Cys Lys Ala Met His Val Ala Gln Pro Ala Val Val Leu Ala
      35              40              45

```

```

Ser Ser Arg Gly Ile Ala Ser Phe Val Cys Glu Tyr Ala Ser Pro Gly

```

50	55	60
Lys Ala Thr Glu Val Arg Val Thr Val Leu Arg Gln Ala Asp Ser Gln		
65	70	75 80
Val Thr Glu Val Cys Ala Ala Thr Tyr Met Met Gly Asn Glu Leu Thr		
	85	90 95
Phe Leu Asp Asp Ser Ile Cys Thr Gly Thr Ser Ser Gly Asn Gln Val		
	100	105 110
Asn Leu Thr Ile Gln Gly Leu Arg Ala Met Asp Thr Gly Leu Tyr Ile		
	115	120 125
Cys Lys Val Glu Leu Met Tyr Pro Pro Pro Tyr Tyr Leu Gly Ile Gly		
	130	135 140
Asn Gly Ala Gln Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser		
	145	150 155 160
Asp Phe Leu Leu Trp Ile Leu Ala Ala Val Ser Ser Gly Leu Phe Phe		
	165	170 175
Tyr Ser Phe Leu Leu Thr Ala Val Ser Leu Ser Lys Met Leu Lys Lys		
	180	185 190
Arg Ser Pro Leu Thr Thr Gly Val Tyr Val Lys Met Pro Pro Thr Glu		
	195	200 205
Pro Glu Cys Glu Lys Gln Phe Gln Pro Tyr Phe Ile Pro Ile Asn		
	210	215 220

<210> 3

<211> 3806

<212> DNA

<213> Homo sapiens

<400> 3

```

taaagtcac  aaaacaacgt  tatatcctgt  gtgaaatgct  gcagtcagga  tgccttgtgg  60
tttgagtgc  ttgatcatgt  gccctaagg  gatggtggcg  gtggtggtgg  ccgtggatga  120
cggagactct  caggccttgg  caggtgcgtc  tttcagttcc  cctcacactt  cgggttccctc  180
ggggaggagg  ggctggaacc  ctageccatc  gtcaggacaa  agatgctcag  gctgctcttg  240
gctctcaact  tattcccttc  aattcaagta  acaggaaaca  agatttttgt  gaagcagtcg  300
cccatgcttg  tagcgtacga  caatgcggtc  aaccttagct  gcaagtattc  ctacaatctc  360
ttctcaagg  agttccgggc  atcccttcac  aaaggactgg  atagtgtctg  ggaagtctgt  420
gttgatatg  ggaattactc  ccagcagctt  caggtttact  caaaaacggg  gttcaactgt  480
gatgggaaat  tgggcaatga  atcagtgaca  ttctacctcc  agaatttgta  tgtaaaccaa  540
acagatattt  acttctgcaa  aattgaagtt  atgtatcctc  ctcttacct  agacaatgag  600
aagagcaatg  gaaccattat  ccatgtgaaa  gggaaacacc  tttgtccaag  tccccatttt  660
ccgggacctt  ctaagccctt  ttgggtgctg  gtggtggttg  gtggagtctt  ggcttgctat  720
agottgctag  taacagtggc  ctttattatt  ttctgggtga  ggagtaagag  gagcaggctc  780
ctgcacagtg  actacatgaa  catgactccc  cgccgccccg  ggcccacccg  caagcattac  840
cagccctatg  ccccaccacg  cgacttcgca  gcctatcgct  cctgacacgg  acgcctatcc  900
agaagccagc  cggctggcag  cccccatctg  ctcaatatca  ctgctctgga  taggaaatga  960
cgcacatctc  cagccggcca  cctcaggccc  ctgttgggcc  accaatgcca  attttctctg  1020
agtgactaga  ccaaatatca  agatcatttt  gagactctga  aatgaagtaa  aagagatttc  1080

```

```

ctgtgacagg ccaagtctta cagtgccatg gccacattc caacttacca tgtacttagt 1140
gacttgactg agaagttagg gtagaaaaca aaaagggagt ggattctggg agcctcttcc 1200
ctttctcact cacctgcaca tctcagtcaa gcaaagtgtg gtatccacag acatttttagt 1260
tgcagaagaa aggctaggaa atcattcctt ttggttaaat ggggtgttaa tcttttggtt 1320
agtgggttaa acggggtaag ttagagtagg gggagggata ggaagacata tttaaaaacc 1380
attaaaacac tgtctcccac tcatgaaatg agccacgtag ttctatttta atgctgtttt 1440
ccttttagttt agaaatacat agacattgtc ttttatgaat tctgatcata tttagtcatt 1500
ttgaccaaatt gagggatttg gtcaaagtag ggattccctc aaagcaatat caggtaaacc 1560
aagttgcttt cctcactccc tgtcatgaga cttcagtgtt aatgttcaca atatactttc 1620
gaaagaataa aatagttctc ctacatgaag aaagaatatg tcaggaaata aggtcacttt 1680
atgtcaaaat tatttgagta ctatgggacc tggcgcagtg gctcatgctt gtaatcccag 1740
cactttggga ggccgaggtg ggcagatcac ttgagatcag gaccagcctg gtcaagatgg 1800
tgaaactccg tctgtactaa aaatacaaaa tttagcttgg cctggtggca ggcacctgta 1860
atcccagctg cccaggaggc tgaggcatga gaatcgcttg aacctggcag gcgaggttg 1920
cagtgagccg agatagtgcc acagctctcc agcctgggog acagagttag actccatctc 1980
aaacaacaac aacaacaaca acaacaacaa caaaccacaa aattatttga gtactgtgaa 2040
ggattatttg tctaacagtt cattccaatc agaccaggta ggagctttcc tgtttcatat 2100
gtttcaggtt tgcacagttg gtctctttaa tgtcgggtgtg gagatccaaa gtgggttgtg 2160
gaaagagcgt ccataggaga agtgagaata ctgtgaaaaa gggatgttag cattcattag 2220
agtatgagga tgagtcccaa gaaggttctt tggaaggagg acgaatagaa tggagtaatg 2280
aaattcttgc catgtgctga ggagatagcc agcattagggt gacaatcttc cagaagtggg 2340
caggcagaag gtgccttggg gagagctcct ttacagggac tttatgtggg ttagggctca 2400
gagctccaaa actctgggct cagctgctcc tgtaccttgg aggtccattc acatgggaaa 2460
gtattttgga atgtgtcttt tgaagagagc atcagagttc ttaagggact gggtaaggcc 2520
tgacctgaa atgacctggg atatttttct acctacagtt tgagtcaact agaatatgcc 2580
tggggacctt gaagaatggc ccttcagtgg ccctcaccat ttgttcatgc ttcagttaat 2640
tcagggtgtt aaggagctta ggttttagag gcacgtagac ttggttcaag tctcgttagt 2700
agttgaatag cctcaggcaa gtactgccc acctaagatg atggttcttc aactataaaa 2760
tgagagataa ggttacaaat gtctcttctt atagtataat ctccataagg gcatggccca 2820
agtctgtctt tgactctgcc tatccctgac atttagtagc atgcccgaca tacaatgtta 2880
gctattggta ttattgccat atagataaat tatgtataaa aattaaactg ggcaatagcc 2940
taagaagggg ggaatattgt aacacaaatt taaacccact acgcagggat gaggtgctat 3000
aatatgagga ccttttaact tccatcattt tctgtttct tgaaatagtt tatcttgtaa 3060
tgaaatataa ggcacctccc acttttatgt atagaaagag gtcttttaat ttttttttaa 3120
tgtgagaagg aaggaggagg taggaatctt gagattccag atcgaaaata ctgtactttg 3180
gttgattttt aagtgggctt ccattccatg gatttaataca gtcccaagaa gatcaaaact 3240
agcagtactt ggggtgctga gaactgttgg atttacccctg gcacgtgtgc cacttgccag 3300
cttcttgggc acacagagtt cttcaatcca agttatcaga ttgtatttga aaatgacaga 3360
gctggagagt tttttgaaat ggcatgggca aataaataaa tactttttt taaatggaaa 3420
gacttgatct atggtaataa atgattttgt ttctgactg gaaaaatagg cctactaaag 3480
atgaatcaca cttgagatgt ttcttactca ctctgcacag aaacaaagaa gaaatgttat 3540
acagggaagt ccgttttcac tattagtatg aaccaagaaa tggttcaaaa acagtggtag 3600
gagcaatgct ttcatagttt cagatatggt agttatgaag aaaacaatgt catttgctgc 3660
tattattgta agagtcttat aattaatggt actcctataa tttttgattg tgagctcacc 3720
tatttgggtt aagcatgcca atttaaagag accaagtgta tgtacattat gttctacata 3780
ttcagtgata aaattactaa actact 3806

```

<210> 4

<211> 220

<212> PRT

<213> Homo sapiens

<400> 4

Met Leu Arg Leu Leu Leu Ala Leu Asn Leu Phe Pro Ser Ile Gln Val
1 5 10 15

Thr Gly Asn Lys Ile Leu Val Lys Gln Ser Pro Met Leu Val Ala Tyr

20					25					30						
Asp	Asn	Ala	Val	Asn	Leu	Ser	Cys	Lys	Tyr	Ser	Tyr	Asn	Leu	Phe	Ser	
35					40					45						
Arg	Glu	Phe	Arg	Ala	Ser	Leu	His	Lys	Gly	Leu	Asp	Ser	Ala	Val	Glu	
50					55					60						
Val	Cys	Val	Val	Tyr	Gly	Asn	Tyr	Ser	Gln	Gln	Leu	Gln	Val	Tyr	Ser	
65					70					75					80	
Lys	Thr	Gly	Phe	Asn	Cys	Asp	Gly	Lys	Leu	Gly	Asn	Glu	Ser	Val	Thr	
85					90					95						
Phe	Tyr	Leu	Gln	Asn	Leu	Tyr	Val	Asn	Gln	Thr	Asp	Ile	Tyr	Phe	Cys	
100					105					110						
Lys	Ile	Glu	Val	Met	Tyr	Pro	Pro	Pro	Tyr	Leu	Asp	Asn	Glu	Lys	Ser	
115					120					125						
Asn	Gly	Thr	Ile	Ile	His	Val	Lys	Gly	Lys	His	Leu	Cys	Pro	Ser	Pro	
130					135					140						
Leu	Phe	Pro	Gly	Pro	Ser	Lys	Pro	Phe	Trp	Val	Leu	Val	Val	Val	Gly	
145					150					155					160	
Gly	Val	Leu	Ala	Cys	Tyr	Ser	Leu	Leu	Val	Thr	Val	Ala	Phe	Ile	Ile	
165					170					175						
Phe	Trp	Val	Arg	Ser	Lys	Arg	Ser	Arg	Leu	Leu	His	Ser	Asp	Tyr	Met	
180					185					190						
Asn	Met	Thr	Pro	Arg	Arg	Pro	Gly	Pro	Thr	Arg	Lys	His	Tyr	Gln	Pro	
195					200					205						
Tyr	Ala	Pro	Pro	Arg	Asp	Phe	Ala	Ala	Tyr	Arg	Ser					
210					215					220						